8. Pollution Prevention/Good Housekeeping BMPs

8.1. Overview

This chapter describes the Pollution Prevention/Good Housekeeping BMPs implemented by MDOT and any changes that have occurred with this program during the reporting period. Complete information on MDOT's pollution prevention/good housekeeping BMPs is included in the Storm Water Management Plan (SWMP). The organization of this chapter is as follows:

- Section 8.2. describes the status of implementation of the BMPs that were described in the SWMP.
- Section 8.3. contains the schedule for further implementation of the BMPs.

8.2. BMP Status and Measurable Goals

Each of the following sections discusses the status of the BMPs identified and described in the SWMP and the measurable goals that were obtained over the reporting period.

8.2.1. MDOT Manuals

As discussed in the SWMP, the MDOT is in the process of preparing the Drainage Manual to describe MDOT's policy and procedure in the design of drainage facilities, and storm water management program BMPs for the MDOT designers and design consultants. Over this reporting period, the Drainage Manual work was begun. A kick-off meeting in March, 2002, started the work on this manual. A Web site has been created where chapters are posted for review. During this reporting period, chapters 7, 8, 10, and 12 (Hydrology, Channels, Bridges, and Storage Facilities) were posted on the Web site for review. In June, a revised chapter arrangement for the Drainage Manual was discussed. When this manual is completed over the next reporting period, designers will be equipped with the tools to be able to implement designs that will ensure that good water quantity and quality practices are followed to prevent pollution resulting from MDOT projects.

8.2.2. Structural and Non-Structural BMPs

Structural BMPs are physical controls that may remove pollutants from runoff. They may limit the rate of runoff from MDOT right-of-way and other facilities. There are many different types of structural BMPs that can be used for different projects as discussed in Chapter 3 of the SWMP. The following is a brief outline of the BMPs, approved by the MDOT as appropriate for its activities:

Structural

The following is a brief outline of the structural BMPs approved by the MDOT as appropriate for its activities:

Infiltration Trench is a gravel-filled trench designed to infiltrate storm water into the ground. Typically, infiltration trenches can only capture a small amount of runoff, and

therefore, may be designed to capture the first flush of the runoff event. For this reason, they are typically used with other BMPs, such as detention basins to control peak flows.

Infiltration Basin are designed to capture a storm water runoff volume, hold this volume and infiltrate it into the ground over a period of days. This system consists of a pretreatment structure, a manifold system, and a drain field. Basins are typically not designed to retain a permanent pool of water.

First Flush Basins are sized to regulate water quality by dropping out pollutants attached to sediments. First flush refers to the large percentage of storm pollutant loading that is produced by a relatively small percentage of the runoff volume during the initial stages of the runoff. First flush basins may be used with other BMPs.

Concrete Grid Pavements are lattice grid structures with grassed or pervious material placed in the grid openings. Their use, however, is generally restricted to parking areas and driveways.

Wetlands (constructed) consist of a basin with a forebay and wetland vegetation area. The forebay traps floatables and the larger settleable solids, facilitating maintenance, as well as protecting the wetland vegetation.

Vegetated Swales are vegetated shallow channels with a dense stand of vegetation covering the side slopes and channel bottom that treat concentrated flows.

Infiltration (Vegetative Filter) Strips are densely vegetated, uniformly graded areas that intercept sheet flow and are usually placed parallel to the contributing surface.

Detention Basins are basins that are dry between storms. During a storm, the basin fills. A bottom outlet releases the storm water slowly to provide time for sediments to settle.

Catch Basin Inlet Devices are devices that are inserted into storm drain inlets to filter, or absorb sediment, pollutants, and oil and grease. These devices are typically placed at locations with a high potential for contamination.

BMPs that can be used during construction to control soil erosion and sediment include:

- Temporary Seeding of Stripped Areas
- Mulching and Matting
- Plastic Covering

Non-Structural

In addition to the above structural BMPs, MDOT approved of the following non-structural and erosion control BMPs:

- Employee Training
- Litter Control

- Identify and Prohibit Illegal or Illicit Discharges to Storm Drains
- Street Sweeping
- Clean and Maintain Storm Drain Channels
- Clean and Maintain Storm Inlet and Catch Basins
- Snow and Ice Control Operations

Non-structural BMPs are preventative actions that involve management and source controls. Many other non-structural BMPs, besides these few examples, are discussed throughout this report.

With a great variety of types of BMPs available, it is very important that goals are established during planning and construction to ensure that the appropriate BMPs are used for each MDOT project.

At this time, no summary of newly constructed structural BMPs exists, but an Asset Management Division is currently being created by MDOT, which will keep track of these numbers in the future.

In order to evaluate how effective this program is, several measurable goals have been established. The results of the measurable goals are included below in Table 8-1.

Table 8-1 Structural Controls Measurable Goals

Measurable Goals	Summary
Summary of new programs, policies, procedures, or information	BMP materials are currently being added to the pay item code.
Summary of newly constructed structural BMPs including the number, location, and type installed	No record currently of BMPs constructed this recording period

8.2.3. Transportation Asset Management Council

Over this past recording period, the Physical Feature Inventory program recorded the assets shown in the following Table 8-2. This program will be as prescribed by Act 499 of 2002 under review by the new Transportation Asset Management Council, which will continue recording the number of assets that MDOT owns in each region. The inventories seen in Table 8-2 were only performed on a region-wide basis and not city-by-city, therefore, the specific inventory of each Phase I community is not shown.

Table 8-2 MDOT Direct Forces Inventory of Assets

Region	Number of Catch Basins	Number of Sweepable Approaches	Ditch Miles	Mowable Acres
Bay	3,545	363	328.72	1,445.29
Grand	X	X	X	X
Metro	1,919	X	X	19.38
North	307	487	352.71	1,013.9
Southwest	4,398	2,163	1,529.62	4,095

Superior	450	143	343	2,097
University	2,979	1,101	778.24	1,932.7
Totals	13,598.00	4,257.00	3,332.29	10,603.27

All of these assets are important for maintenance activities performed on roadways that help to improve storm water runoff quality. Although this table is not an all-inclusive table, it includes only what has been counted up-to-date by the Physical Feature Inventory program.

8.2.4. Operation and Maintenance

As discussed in the SWMP, depending on location regionally around the state, local public transportation agencies working under contract for MDOT or MDOT employees will inspect BMPs on a regular basis. At this time, counties do not keep records detailing the exact inspection and maintenance work that was performed.

MDOT constructs, operates, and maintains its highways and facilities in a manner to reduce the discharge of pollutants into the drainage system. Neglected structural BMPs may contribute pollutant loading if left unchecked. The inspection and maintenance of each BMP will be determined as it corresponds to guidelines that will be described in the MDOT's *Drainage Manual* and as described in the MDOT's Operation Maintenance Handbook. The regular inspection and maintenance for the BMPs will maintain the effectiveness and structural integrity of the BMPs.

In one MDOT region, MDOT performed maintenance activities on various catch basins and were able to keep a record on the inspection and maintenance that was performed. Over this past recording period, a restoring and repairing crew visited various catch basins throughout twenty-four counties in northern Michigan (not part of the Phase I communities). The crew located, inspected, analyzed, repaired and/or replaced catch basins throughout this area. This work not only helps water quality, but improves highway safety, as it makes it less likely that a sinkhole will wash out the road in the future.

As stated in the SWMP, MDOT uses a system of calibrated salt dispensers to minimize the amount of salt applied to roadways. MDOT conducted a literature review comparing various deicing alternatives and found that salt is as cost-effective, and is no more environmentally harmful than any of the other alternatives reviewed. The MDOT service crew in L'Anse won a 2001 Excellence in Storage Award over the reporting period. This award recognized the L'Anse Service Center for having an excellent physical facility and policies and for having a commitment to an environmentally conscious operation.

In order to evaluate how effective this program is, several measurable goals have been established. The results of the measurable goals are included below in Table 8-1.

Table 8-3 Operation and Maintenance Measurable Goals

Measurable Goals	Summary
Summary of new programs, policies, procedures or information	MDOT is currently creating an Asset Management Division, which will allow for more accurate operation and maintenance records.
Summary of inspection/maintenance performed on structural BMPs	MDOT is currently creating an Asset Management Division, which will address this issue at a later date.

8.2.5. Fleet Maintenance

MDOT ensures that proper precautions are taken so that vehicle maintenance activities do not impact storm water runoff quality. A Pollution Incidence Prevention Plan (PIPP) has been written for all MDOT maintenance and storage facilities. Planning is required by the Part 5, Spillage of Oil and Polluting Materials administrative rules promulgated pursuant to Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451) MCL 324.3101 et seq. These rules were revised effective August 31, 2001.

In order to evaluate how effective this program is, several measurable goals have been established. The results of the measurable goals are included below in Table 8-4.

Table 8-4 Fleet Maintenance Measurable Goals

Measurable Goals	Summary
Summary of new programs, policies, procedures, or information	No new programs, policies, procedures, or information
Summary of PIPP audits conducted	Audits conducted for Grand Rapids Maintenance Garage and the Grand Rapids Bridge and Forestry Facility Building (See Chapter 10)

8.2.6. Storm Sewer Outfall Labeling

MDOT will provide permanent identification to all outfall structures that are installed or constructed after March 10, 2004. Over the next reporting period, MDOT will be working on design standards needed to meet this requirement.

In order to evaluate the effectiveness of this program, several measurable goals have been established. The results of the measurable goals are included below in Table 8-5.

Table 8-5 Storm Sewer Labeling Measurable Goals

Measurable Goals	Summary	Number
Summary of new programs, policies, procedures, or information	No new programs	NA
Number of storm sewer outfalls labeled	NA	No storm sewers labeled.

8.2.7. Pesticides and Fertilizers

Pesticides and Fertilizers are applied on MDOT rights-of-ways, as described in the SWMP. Each year, a Michigan Department of Agriculture approved pesticide-training seminar is held by the maintenance division of the MDOT to train and recertify individuals. During this reporting period, the training was held on April 23, 2002, and forty-nine employees were trained and recertified.

In order to evaluate how effective this program is, several measurable goals have been established. The results of the measurable goals are included below in Table 8-6.

Table 8-6 Pesticides and Fertilizers Measurable Goals

Measurable Goals	Number
Summary of new programs, policies, procedures, or information	None
Number of certified MDOT personnel	49
Number of individuals attending the yearly training session	49

8.3. Implementation Schedule

MDOT will continue work on any necessary tasks upon approval of this Annual Report and the Storm Water Management Plan by MDEQ and the availability of funds. The following Table 8-7 is an estimated implementation schedule for all of the actions needed to fulfill the BMPs discussed in this in the SWMP for the pollution prevention/good housekeeping projects.

Table 8-7 Implementation Schedule for Construction Storm Water Runoff Control BMPs

ID No.	Action	Year of Implementation			
		2002	2003	2004	2005
8.2.1	**MDOT Manuals**				
	Drainage Design and Storm Water Management Manual		**X**		
8.2.2	**Structural and Non-Structural BMPs**				
	Structural and Non-structural				
8.2.3	**Transportation Asset Management Council**				
	Structural BMPs		**X**	**X**	**X**
8.2.4	**Operation and Maintenance**				
	Continue existing operation and maintenance program	**X**	**X**	**X**	**X**
8.2.5	**Fleet Maintenance**				
	Continue existing fleet maintenance program	**X**	**X**	**X**	**X**
8.2.6	**Storm Sewer Outfall Labeling**				
	Permanently label newly constructed storm sewer outfalls			**X**	**X**
8.2.7	**Pesticides and Fertilizers**				
	Continue existing pesticide and fertilizer program	**X**	**X**	**X**	**X**